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IN THIS ISSUE

THE "NEW AGRARIAN ORDER" IN NAZI-INVADED RUSSIA

CONTINENTAL EUROPE'S WARTIME FOOD BALANCE

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THE "NEW AGRARIAN ORDER" IN NAZI-INVADED RUSSIA

By Lazar Volin*

The Nazi land policy in invaded Russia may soon be of merely historic interest as is today the abortive German occupation of the Ukraine in 1918. However, claims of a far-reaching land reform in the temporarily occupied regions of Soviet Russia, which have emanated from Nazi sources during the past year, call for an objective statement, though it should be borne in mind that the meager and fragmentary nature of the data leaves much of the picture still obscure. Examination of the available evidence discloses that the Nazis retained many features of the existing collective agrarian system, either in the guise of "transitional" forms of agricultural organization or permanently as in the case of machine-tractor stations and state farms. In general, the key to the Nazi land policy in invaded Russia is found, not in any formal change in land tenure or type of farm organization, but in the persistent effort to squeeze out of the Russian soil and peasant population all that they can possibly give to Germany, to which end the whole farm system is geared.

The Nazi invasion of Soviet Russia posed before Hitler an agrarian problem which he did not encounter in his previous conquests. In other invaded countries, the Nazis found a more or less familiar agrarian structure based on individual ownership of land and, for the most part, a small farm-operating unit. In the occupied regions of Soviet Russia, however, the Nazis are confronted with an entirely different type of farm organization, the kolkhoz - the collective farm. It was, moreover, the kolkhoz without its supervising personnel and skilled workers, who were mostly evacuated, and without most of the tractors andother farm implements, which were damaged or destroyed during the Russian retreat.

The Nazis, therefore, were faced with a dilemma. On the one hand, the "crusade against Bolshevism," as Hitler advertised his latest campaign, demanded the speedy destruction of so typical a product of Bolshevism as the kolkhoz. It was also logical for the Nazis to believe that distribution of collectivized land among the peasants might win their support and, in any event, would have a good propaganda value. But against such ideological and political considerations was set the urgent need of Germany to obtain as large a quantity of foodstuffs from the occupied area as possible, which made immediate decollectivization a risky matter for the Nazis. But before dealing with the Nazi solution of this problem, it seems advisable to review briefly the salient features of the collective-farm system that the Germans found when they invaded Russia.

THE SOVIET COLLECTIVE SYSTEM

The survey will be confined to two of the occupied areas, the Ukraine and White Russia (called White Ruthenia by the Nazis), which were largely occupied early in the war and may be considered fairly typical of conditions in the southern and northern

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parts of the occupied zones. Moreover, a semblance of civil administration has been introduced over a large part of this territory. White Russia, together with the occupied eastern Baltic states, constitutes a part of the so-called Ostland administration. The Ukraine is divided into two parts: the smaller southwestern part, between the Dniester and Bug Rivers, called Transnistria, with the capital in Odessa, is under Rumanian administration; the larger part is under the Nazi Commissariat General of the Ukraine, or the army command.

As everywhere else in Russia, the numerous small peasant holdings were pooled together in the early thirties into larger collective farms, the so-called kolkhozes. On July 1, 1938, the Ukraine had over 27,000 kolkhozes, which included about 3,900,000 peasant families, or 96 percent of their total number. A decade earlier, before the forced collectivization, and the "liquidation" of the more prosperous peasants, there were 5,000,000 such families, most of whom had small but independent land holdings.[1] Of more than 63,000,000 acres sown in the Ukraine in 1938, 83 percent was under collective cultivation, about 10 percent in state farms, and only 7 percent still cultivated individually.[2]

White Russia had nearly 9,700 kolkhozes, which included about 715,000 families. A somewhat larger percentage of peasant families were outside the collective system in White Russia than in the Ukraine, 10.1 and 3.8 percent, respectively. Of the total 1938 sown area of 8,200,000 acres, 85 percent was under collective cultivation, 2 percent in state farms, and 13 percent was cultivated individually. The kolkhozes in the forested White Russia were smaller than in the steppe or forest-steppe regions of the Ukraine. In the Ukraine, itself, the size of farms was larger in the drier east and south than in the north and west. The sizes of collective farms in the Ukraine and White Russia in 1938 were as follows:

	Number of households per kolkhoz	*Acres of farmland per kolkhoz*	*Sown acres per kolkhoz*
Ukraine	141	3,151	1,927
White Russia .	74	1,976	726

Although in theory, the kolkhoz is a self-governing organization functioning within the orbit of Soviet planned economy, it is in practice dominated and controlled by government and party officials. Essentially, the economy of the kolkhoz, under the so-called artel form of organization, is one of socialized production and individualism in consumption. The peasants continued to live as before in the villages, each of which comprised one or several kolkhozes. All land of the kolkhoz, with the exception of small plots for kitchen gardens and orchards left in possession of each family, is worked jointly by collective farmers in groups of varying size; larger in the case of such crops as small grains, when they are called brigades, and smaller in the case of more intensive crops. Organization in the kolkhozes of such small working units, called *zveno*, was much emphasized by the Soviet Government in the years immediately preceding the Russo-German war.

In 1938, less than 6 percent of the total land area of the kolkhozes in the Ukraine was in personal possession of their members, and in White Russia it was 4 percent, or

[1] These holdings were usually not in a single tract of land as on American farms, but were scattered into a number of strips over several fields intermingled with the holdings of others. This inefficient scattered-strip system of farming was done away with by collectivization when the separate strips were consolidated into larger fields.

[2] These included also the small plots of peasant farmers in the kolkhozes and of workers on which they raised products for their personal consumption.

about an acre per family. Since 1939 regulations with regard to the allotment of land for the personal use of collective farmers were considerably tightened by the Government. Furthermore, peasants were forced to abandon the practice formerly common in the Ukraine and White Russia of living in farmsteads outside the villages.

The livestock situation presented a somewhat different picture. Horses, it is true, were almost entirely collectivized and their number became greatly reduced. But in 1938 against 1,859,000 head of cattle that were collective property, there were 4,370,000 in personal possession of collective farmers in the Ukraine. Similar figures for hogs were 1,921,000 and 3,982,000; but for sheep and goats 1,517,000 and 1,013,000. In White Russia the figures for collectively and privately owned livestock on collective farms were, respectively, as follows: For cattle, 722,000 and 896,000, for sheep and goats, 266,000 and 720,000, and for hogs, 209,000 and 1,366,000. Again, in the years immediately preceding the war, the policy of the Government was to increase the numbers of the collectivized livestock.

The importance of mechanization in the Soviet collective agriculture is so well known that it requires no emphasis. If anything, the exaggerated impression of its completeness in some circles abroad needs to be corrected. Animal draft power by no means lost its importance, especially in the more northern regions, as will be seen shortly. No less significant than mechanized power itself in Soviet agriculture is its form of organization. The collective farms do not own the tractors, combines, and the tractor-driven machinery. These are all concentrated in state-owned machine-tractor stations, administered by the Commissariat of Agriculture in accordance with government plans. It is the machine-tractor stations that perform on collective farms the field work requiring the use of mechanical power. Each machine-tractor station has its staff, including the manager with his assistants, mechanics, tractor drivers, and combine operators. The trained tractor drivers and combine operators are from among the peasants of the kolkhozes, which pay in part their wages. The stations are equipped with repair shops for current repairs and the overhauling of tractors and other machinery. At the end of 1938, there were 1,016 machine-tractor stations in the Ukraine and 227 in White Russia. The average number of tractors per station in 1937 was 70 in the Ukraine and 37 in White Russia. Each station in the Ukraine served 28 kolkhozes with a total area of over 53,000 acres and in White Russia, 41 kolkhozes with an area of over 32,000 acres.

The extent to which the tractors of these stations are used for different types of field work varies. It is highest in plowing, reaching 85 percent of all spring plowing in the kolkhozes in the Ukraine and 56 percent in White Russia, and 72 and 50 percent, respectively, of fall plowing. For other field work in the Ukraine it was 45 percent for spring sowing, 44.5 for harvesting, and 39 percent for winter sowing. The figures were considerably smaller in White Russia - 10, 2, and 12.5 percent, respectively.

For their services machine-tractor stations are paid in kind; i. e., in grain, sunflower seed, etc., at rates fixed by the Government for different types of operations and varying with the yields of crops per hectare, estimated by the Government. Thus the machine-tractor station is an important source of revenue in terms of farm products to the Soviet Government. In 1939, for instance, about 19.2 percent of the grain crop of the collective farms of the whole Soviet Union was delivered to the Government in payment for work of machine-tractor stations. The political sections attached to the latter are important means of control and propaganda. The machine-tractor stations, therefore, not only perform an exceedingly important technical function in Soviet agriculture, but they also play a highly significant fiscal as well as political role.

In addition to payments to machine-tractor stations, the kolkhoz has to deliver grain and other farm products to the Government at fixed prices which are lower than the market prices, the difference constituting a sort of a tax in kind. The amount delivered was originally fixed by the Government as a certain quantity per hectare on the area specified by the government plan to be sown to the particular crop each year. In 1939, 14.3 percent of the grain crop of the kolkhozes was thus delivered to the Government. In 1940, however, these levies began to be estimated not on the sown area as determined by the plan but on the total arable land of the kolkhoz. This applied not only to crops but to livestock products as well. Consequently, the taxes in kind on the kolkhozes increased.

The collective farmers are the residual claimants to the income of the kolkhoz after the obligations to the Government and seed and feed requirements and other expenses of production are met. The income in kind and in cash was distributed to the collective farmers on the basis of the so-called "labor days" earned, which are not actual working days but abstract accounting units used to calculate the amount of work performed by individual workers. A government decree of February 28, 1933, divided all farm work into seven categories, each of which rated a different valuation in terms of "labor days," for the daily performance of a norm or task, ranging from one-half to two "labor days."

In the Ukraine the average number of "labor days" earned by an able-bodied worker in 1937 was 188 and by a family 402. In White Russia the corresponding figures were 204 and 480, respectively. In that record crop year, when the income of collective farmers was higher than ever before, there were distributed per "labor day" in the Ukraine, on the average, 3.8 kilograms (8.4 pounds) of grain and 0.93 ruble.[3] In White Russia a "labor day" brought 1.7 kilograms (3.7 pounds) of grain and 0.35 ruble.[4] But in the latter region practically all kolkhozes distributed potatoes, 4.7 kilograms (10.4 pounds) on the average; whereas in the Ukraine only 61 percent of the kolkhozes distributed 1.5 kilograms (3.3 pounds) of potatoes per average "labor day." At the beginning of 1941, a decree by the Kremlin, applied originally to the Ukraine but later extended to other regions, provided for further differentiation of the wage system of the kolkhozes. In addition to regular "labor day" payments, the collective farmers were to share in the output of their brigade or zveno if it exceeded the specified, rather high yields of crops and livestock products.

In addition to the kolkhoz and the machine-tractor stations, there are also so-called state farms which are owned and managed outright by the Government with hired help. But in the western part of the Soviet Union they are relatively unimportant. In 1938 there were 802 state farms in the Ukraine with a sown area of 5,800,000 acres or less than 10 percent of the total sown area. In White Russia there were 63 such farms with a sown area of 150,000 acres or less than 2 percent of the total.

THE NAZI NEW AGRARIAN ORDER[5]

Such was the farm system that prevailed in the western, as in the other, regions of Russia when the Nazis invaded the country in the summer of 1941. The first serious

[3] In the fairly good year, 1935, for instance, only 2.4 kilograms (5.3 pounds) of grain were distributed on the average in kolkhozes throughout the Soviet Union as compared with 4 kilograms (8.8 pounds) in 1937.

[4] Since July 19, 1937, a ruble has been equal to 18.8679 cents United States currency at the legal par of exchange. This, however, is a purely nominal value which overrates the real purchasing power of the ruble.

[5] The excerpts quoted from the German press are mostly translations made in the United States Legations in Stockholm and Bern, the reports of which were largely relied upon in the preparation of this section.

blow to this scheme was dealt by the retreating Russians when they withdrew many skilled farm workers, experienced officials, and technicians, on whose decisions and orders the peasants in the kolkhozes were taught to rely, and wrecked or seriously damaged many tractors and other farm machinery. The slate seemed to have been wiped clean for decollectivization. But almost from the first the indications were that the Nazis would proceed cautiously in the matter, because they wanted as little interference with production as possible. An article which appeared on August 17, 1941, in the authoritative periodical, *Das Reich*, by a former German correspondent in Moscow, Gerhard Thimm, had this to say:

"Years will be necessary to restore to genuine peasantry the collective farmer who has been landless and has forgotten his knowledge of property and hence his love of the soil under a Soviet system. Perhaps the growing up of a new peasant generation on the areas cultivated by the collective farms will then make possible a wholesome mixture of state-owned large farm unit and medium-sized peasant unit which would most advantageously use the immense productive capacity of the 'Russian earth.'"

This statement seemed to foreshadow the retention of the collective system. Later, references to the subject in the Nazi press became even less veiled.

Thus, the *Hamburger Fremdenblatt* of February 21, 1942, stated: "The German administration will, at least for the present, retain the kolkhoz system, because this system facilitates the rehabilitation of agriculture. It would be impossible to divide the kolkhoz land among the former owners as they have no field implements, carriages, horses, etc. of their own."

Likewise, the *Berliner Börsen-Zeitung* of February 25, 1942, stated: "As far as possible the existing agricultural administrative organization has been taken over. This was the case also for the Soviet kolkhozes and sovkhozes (state farms). As this cannot be considered as a consolidation of individual agricultural establishments which can be divided without further ado, but, on the contrary, constitute large, compact establishments (geschlossene Grossbetriebe), we must conserve this framework in order to avoid a break in the production." Three days later, however, the same paper, as well as the rest of the German press, announced a decree stating that:

"Herr Alfred Rosenberg, Reich Minister for the Occupied Eastern Areas, acting in collaboration with Reich Marshall Goering who is in charge of the Four-Year Plan, has issued a decree for a new agrarian order for those territories of the former Soviet Union which are now under German Civil Administration. This new agrarian order abolishes the kolkhoz Constitution and the Model Statutes of the Agricultural Artels by which the kolkhoz system was put into practical operation. The Bolshevik kolkhoz system is thus superseded by a new order which, in different complementing forms, leads the agricultural population of Eastern Europe back to individual methods of soil cultivation."

In the same breath, however, it was stated, "It is obvious that one cannot reorganize the Bolshevik system overnight." This is the crux of the matter. The formally dissolved kolkhozes were to give way to trahsitional types of farming, the most important of which - the joint-farming establishment - differs only in minor degree from the Soviet collective system. It is true that the restrictions on the individual possession of livestock, which existed under the collective system, are done away with. Moreover, the small plots of land adjacent to each farmhouse, which have always been at the disposal of the peasants, even under the collective system, for the raising of products for their own consumption, were to be enlarged and to become their private property. But the land on which staple crops are grown will continue to be worked on a collective basis. The cumbersome "labor day" method of payment is to be replaced by a more simple wage system but "general supervision" which "will prevent the laborers and the establishments from disintegration" will remain unchanged, according to the comments of a high Nazi official published simultaneously with the new decree.

The other transitional type of farm, less important at present, is that of the "agricultural association" which differs markedly from the typical kolkhoz. The

agricultural association in fact resembles the earlier type of the Russian collective farms of the 1920's, the so-called *toz*, which may be characterized as joint cultivation of a number of individual holdings whose owners voluntarily combine for this purpose. Finally, the state farms and machine-tractor stations are to be retained unchanged as state property. The machine-tractor stations are to be developed into special agricultural centers or bases with the objective of providing the necessary equipment in the district and to foster improvement of agricultural technique. The following summary description of the different types of farms set up by the Nazi's New Agrarian Order has been made by Dr. Bruce Hopper, attached to the United States Legation at Stockholm:

I. Joint-Farming Establishment (Gemeinwirtschaft):

1. Formed for the purpose of taking over the Kolkhoz.
2. Joint labor in plowing, sowing, harvesting, etc.
3. Work performed by peasant farmers who receive wages.
4. Peasant farmers granted full property rights on their small plots surrounding their households, which plots may be enlarged and are exempt from every kind of taxation.
5. Individual cattle breeding permitted.
6. Presumably greater individual initiative than on the kolkhoz.

II. Agricultural Association (Landbau-Genossenschaft):

1. Formed by individual farmers after division of the land for usufruct. Therefore, it is an association of individual farmers.
2. Collective plowing, sowing, and harvesting. (Thus, collective labor for only part of the year, presumably because machinery for large-scale operations cannot be assigned for individual use in most areas.) Cattle, draft animals, and implements adapted for individual use to be distributed among members of the association.
3. Members receive the crops they harvest (presumably to divide among themselves), after deduction of compulsory deliveries in kind, which, though not stated, go to the State; i. e., to the German administration at present. Members thus do not receive wages as the peasants do on the Joint Farms. The percentage of the total crop to be given over as deliveries in kind is not specified.
4. Much greater initiative than on the Bolshevik artel because the Bolshevik system of keeping a daily record of each individual's work performance in order to calculate his share of the crop is abolished, thus reducing overhead expenses. Compulsory labor is likewise abolished. The members are offered the prospect of eventually owning the land they till.

III. Individual Farms (Einzelwirtschaft):

1. The final stage in the transition process, or rather the goal, in which collective tillage is no longer required. Individual farming is subject to the established state plan for cultivation and to principles of modern agricultural technique.
2. At present individual farming can only be permitted in exceptional circumstances, approved of by the German authorities. This privilege is granted only to farmers of demonstrated efficiency and political reliability, or as reward for cooperation against Soviet guerrillas, etc.
3. In some areas, especially in the south, where individual farming is not feasible, the agricultural association will become the permanent form.

IV. Retention of "Sovkhoz" and Machine-Tractor Station.

1. Whereas the Kolkhoz and the Model Artel Statutes are abolished, the Sovkhoz and the Machine-Tractor Stations are retained, as "State Property" to serve as agricultural-promotion centers (Stützpunkte) and a means of control; e. g., by loaning large machinery, seed, fertilizers, etc.

V. Difference from the Ideal Bolshevik System.

1. The difference from the ideal Bolshevik system is not clear except in the fundamental objective that the goal is the individual farm and not the agricultural commune.
2. The political objective is to keep Eastern Europe an agricultural appanage of the German "Grossraum."

The scheme of farm organization outlined above does not necessarily imply a definite evolutionary sequence. As was pointed out by a writer in the *Ostdeutscher Beobachter* for March 5, 1942: "Certain circles have voiced the opinion that the way from the kolkhoz to the ultimate reorganization of agriculture in the Occupied Eastern Areas will proceed by the following stages: (1) Kolkhoz, (2) joint-farming establishments, (3) agricultural association, (4) individual farms. This opinion does not show, however, how the abolition of the kolkhoz system is to be carried out in practice. One fact must, however, stand forth at all times; namely, that at the present moment, when the Continent has to bear the burden of the war and when the principal problem is that of supplying the population of the Occupied Eastern Areas and the Eastern Front with sufficient food, the realization of the ideal system of agriculture in the Eastern Areas cannot be commenced at once." The author also states that "in large areas, especially in the South, there are many cases where individual farming cannot be introduced, because the joint-farming system, namely, the agricultural association, is the most appropriate form for the exploitation of these areas. Therefore in certain areas, the agricultural association will not be in a provisional stage but a permanent institution. On the other hand, a direct transition from the kolkhoz to the individual farms is by no means out of the question under certain circumstances."

According to Nazi sources, the conversion of kolkhozes into joint-farming establishments was proceeding rapidly in 1942. Thus, according to the *Berliner-Börsen Zeitung* of November 18, 1942, 28,000 kolkhozes in the Ukraine had been converted into joint-farming establishments. It was also stated that 3,000 of these had already been changed into agricultural associations. The only specific instance of the organization of such an association available from Nazi sources is that of a farm near Kiev, reported by the *Deutsche Allgemeine Zeitung* of June 20, 1942. It was indicated, however, by the same source that organization of additional agricultural associations would soon take place in other Ukrainian districts. In the Orel district (in the Central Black Soil Area) a large kolkhoz was replaced by 3 joint-farm establishments corresponding to the 3 villages included in the kolkhoz, according to the Berlin *Novoe Slovo* of June 28, 1942. In White Russia, a poorer agricultural region, with smaller farms, it is claimed more rapid progress has been made in the introduction of agricultural associations. The *Deutsche Zeitung im Ostland* for December 18, 1942, even went so far as to state that "everywhere in White Ruthenia the second stage of the New Agrarian Order - the agricultural association - has been introduced." Since large rural areas in invaded Russia were never effectively controlled by the Nazis, according to Soviet reports, many of the above claims may be fictitious or register merely formal changes. According to the Berlin *Novoe Slovo* of June 28, 1942, in the Slutsk and Minsk districts, 1400 kolkhozes were liquidated and 122,000 individually owned holdings organized.

There were several statements from time to time in the Nazi press dealing with the allotment of the personally owned peasant plots in joint-farming establishments. Thus it was stated that in the district of Dnepropetrovsk, in the Ukraine, 2,716 families in 15 joint-farm establishments had been allotted 4,598 acres of land, or less than 2 acres per family. It is not clear whether this was in addition to the plots

possessed by the peasants under the Soviet system. It was also said that by April 30, 1942, 8,200 additional families in this district had received enlarged plots. In the district of Kremenchug, also in the Ukraine, 2,500 families had plots increased. Enlargement of such plots was also reported from the district of Stalino (Ukraine) in May 1942. Another report stated that 12,000 families in Crimea received plot enlargements totaling 14,826 acres. A more general report, not mentioning any particular district, stated that 122,000 peasant plots had been enlarged up to the end of May 1942. But in all these cases it is not quite certain whether any enlargement of existing plots has actually taken place.

The enlargement of, or issue of title deeds to, peasants' personally owned plots is apparently used by the Nazis to induce the population in the country districts to cooperate with them. Thus, it has been repeatedly stressed by the Nazis that preference in enlargement of personally owned plots would be given to those farmers who had helped the Germans to fight the Soviet guerrillas and to those who had shown personal initiative during the period immediately following the occupation and who had distinguished themselves in the work of rescuing grain supplies. It has also been indicated in the Nazi press that residents of the eastern European areas who are working in Germany or who have reported for work in those areas of southern Ukraine where labor shortage was experienced, will not lose the right to the allotment of plots in the joint-farming establishments. At the same time, it has been announced that the so-called "kulaks" (the more prosperous peasants who were deprived of their property by the Soviet Government during collectivization in the early 1930's) may again engage in farming.

On the other hand, the Nazis have let it be known that persons politically untrustworthy, from their point of view, cannot become members of joint-farming establishments or of agricultural associations and consequently cannot receive any plots of land into their personal possession. A touch of irony was added by a report emanating from Rovno (The Ukraine) on January 5, 1943, that the collective-farm system was abolished in the Kuban and other North Caucasian areas on December 20 and replaced by the Nazi new agrarian order. Timing of this to coincide with a developing Soviet offensive in those areas would appear to make it a purely propaganda gesture on the part of the Nazis.

As was pointed out earlier, the Nazis were confronted with a formidable administrative problem in the occupied regions because of the withdrawal of the managerial and technical personnel from farms during the Russian retreat. The situation was aggravated by the hostility or passivity of the local population and guerrilla fighting. The Nazis resorted to the importation of officials with special agricultural training. The task of these officials (special leaders) was admitted by the Nazis to have been very difficult and dangerous. Some were killed, and a number had been awarded the German iron cross. An Associated Press correspondent, who was permitted to travel in the occupied Ukraine in the autumn of 1941 describes the meeting with such a "leader" at a point about 100 miles south of Kiev as follows:

"A leader, who had taken charge in that area only 10 days before, related that, as an example of the conditions he found, about 100 families in one farm unit had only 10 milch cows among them. This kolkhoz, however, still had about 90 head of horses, and with these, plus whatever motorized equipment can be spared by Germany's war economy, the 100 families must work their 3,300 acres."[6]

Numerous stories of brutality and even unbelievable savagery of the German invaders toward the Russian peasant population are reported in the Soviet press.

[6] New York Herald Tribune, October 30, 1941.

The land policies adopted in the Rumanian-controlled Transnistria (southwestern Ukraine) have followed the same pattern as in the Nazi-occupied territories. The *Deutsche Allgemeine Zeitung* for July 12, 1942, stated:

"In order to prevent any sudden disturbance of economic life and make possible the taking of an accurate inventory of the property found, the Rumanian Government has decided to bring about a gradual return to the system of private property. Consequently, both the state farms and the collective farms are being temporarily retained and their management is being taken over by the Rumanian Government authorities. Moreover, the creation of associations of farm workers comprising 30 families on the average, who receive about 200 hectares (about 500 acres) of arable land, is being instituted simultaneously with the agrarian reform begun by Alfred Rosenberg, National Minister for the Occupied Eastern Regions.

One other and by far the most important aspect of the new agrarian order has been little advertised by the Nazis - the systematic seizure of the peasants' output. Thus Koch, Reich Commissioner for the Ukraine, issued on May 20, 1942, an order regulating the deliveries of the 1941 harvest which were due, stipulating that:

1. All grain and oilseed crops and pulse threshed or otherwise in the possession on that date of farm producers and persons employed in farming is considered to have been confiscated with the exception mentioned under 2 and is to be surrendered or reported for delivery to the authorities concerned against payment;

2. Exempt from surrender are (a) 10 kilos (22 pounds) of grain per head of the family per month; (b) 1.5 kilos (3.3 pounds) of fodder per head of cattle per day, oats excepted; for A and B for the period May 15 to August 31, 1942; (c) the necessary quantity of the seed of millet, maize, buckwheat and other plants to be sown after June 1, 1942.

3. All other persons and undertakings dealing in such produce must surrender the stocks on hand holding nothing back or report for surrender to the authorities concerned.

4. Surrender or report for surrender must take place by June 15, 1942, at the latest, after which date noncompliance with the order will be punishable with confiscation of the stocks held, seizure of cattle, and imprisonment, or both, and in especially flagrant cases with hard labor or death.

5. The order entered into force on its publication; i. e., May 20, 1942.

The amount of grain, which the peasants are permitted to retain, represents probably less than half their normal consumption. It is not surprising that under such conditions stringent regulations are necessary to compel the peasants to work. In Transnistria, for instance, failure to work leads not only to the forfeit of one's share in the collective labor, but, in addition, "no products or goods may be bought unless the purchaser shows a labor certificate issued to him for the purpose of showing the amount of work he has done."[7] A popular saying among the Russian peasants is, "peasant work and German crop," or, in other words, the peasants sow and the Germans reap.[8]

In these regulations dealing with distribution and labor, the Nazi "new agrarian order" is revealed in its stark reality. It may be best characterized as essentially that of an attempt to squeeze out of the Russian soil and population all that they can possibly give to Germany. This, and not any formal change in land tenure or farm organization, is the crux of the Nazi land policy in the temporarily occupied regions of Soviet Russia.

Information is conflicting as to whether the Nazis have been successful in this objective. Nazi sources, although admitting decreased acreages sown to the 1941-42

[7] Deutsche Allgemeine Zeitung, July 12, 1942.

[8] Socialist Agriculture, December 29, 1942.

crops, especially to winter grain, in the occupied regions, nevertheless claim full and timely deliveries of farm products. On the other hand, Soviet and neutral reports indicate that large rural areas within the invaded zone have not been really effectively occupied by the Nazis and are often controlled by local Soviets, assisted by guerrillas. The crumbling of the Nazi lines in eastern Ukraine and the Don-North Caucasus area in the winter of 1943, even if it should not lead to immediate expulsion of the invaders from the Russian soil, is likely to undermine further the Nazi authority in the Russian countryside that remains in the occupied zone. But the ability of the Nazis, under such conditions, for organized plunder and destruction should not be underestimated. Their evil memory will doubtless constitute the most lasting effect of the "new agrarian order" that the Nazis brought to Russia.

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CONTINENTAL EUROPE'S WARTIME FOOD BALANCE

By J. H. Richter*

Since the outbreak of war agricultural production in continental Europe has declined, and imports of foodstuffs have been very much reduced. The effects of these developments upon consumption were only partly offset by some diversion of crop production from feed to food uses and greater reliance on foodstuffs of vegetable origin - which in regard to total energy obtained is a more economical utilization of the products of the soil. Civilian per capita consumption of food in continental Europe, 1941-42, fell to an average of 84 percent of the pre-war level in total energy. Since large sectors of the populace, including most of the farm population, have scarcely been affected by the reduction in supplies, this average means that food consumption in other population groups has been drastically curtailed. There are also considerable differences as among individual countries and regions, and millions of people must subsist on as little as two-thirds or even one-half of the pre-war calories. On the other hand, the reductions that have occurred have not been great enough to make the food problem in the European Axis countries a decisive factor in the war. Germany's food position continues far better than it was in the last war.

As a result of changes in the consumption of individual products on the Continent, foodstuffs of animal origin supplied only 17 percent of the total calories compared to 22 percent before the war. The average supply of total protein in 1941-42 was about 8 percent below pre-war; in animal protein alone the decline was probably as much as one-third. These declines and changes show the extent of Europe's wartime food problem and the magnitude of the effort that will be required to overcome it after the war.

INTRODUCTION

This study is a continuation of the preliminary analysis of "Continental Europe's Pre-War Food Balance" published in FOREIGN AGRICULTURE, August 1942. It carries the project one step further by presenting a rough quantitative evaluation of the Continent's wartime food situation in addition to data for the pre-war period. The crop year 1941-42 was chosen as the latest complete war season. This information should permit an insight into the changes and shifts that have occurred in continental agricultural production and food consumption. Together with the pre-war balance, it will also form part of the background material needed for any estimate of the Continent's post-war requirements. The exigencies of a situation in which governments throughout the world have assumed responsibility for the broad management of the economic affairs of their peoples make it necessary to gage the probable picture of requirements and supplies of food and other essential commodities in the years ahead in order that measures can be planned and carried out in time to meet specific conditions.

The area treated in this study, as one of the segments from which a world picture may be built, is one of the largest food-deficit regions in the world - the Continent of Europe with a population of around 350 million. The study is an over-all summary, pieced together in an over-all fashion and subject to revision and refinement as

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TABLE 1.—*Pre-war and wartime food production*

FOODSTUFF	ENERGY OR FUEL VALUE OF FOOD[2]	DOMESTIC PRODUCTION OF FOOD FROM -					
		DOMESTIC RESOURCES		IMPORTED FEEDSTUFFS		ALL SOURCES	
		QUANTITY	TOTAL CALORIES	QUANTITY	TOTAL CALORIES	QUANTITY	TOTAL CALORIES
	1,000 cal. per ton	*1,000 m. tons*	*Billions*	*1,000 m. tons*	*Billions*	*1,000 m. tons*	*Billions*
Breadstuffs and cereals (incl. rice) for food in terms of flour: Pre-war	3,400	43,400	147,560	-	-	43,400	147,560
1941-42	3,300	44,400	146,520	-	-	44,400	146,520
Potatoes for food: Pre-war	880	40,000	35,200	-	-	40,000	35,200
1941-42	880	52,000	45,760	-	-	52,000	45,760
Sugar for food: Pre-war	4,000	5,500	22,000	-	-	5,500	22,000
1941-42	4,000	5,000	20,000	-	-	5,000	20,000
Legumes: Pre-war	2,620	2,650	6,943	-	-	2,650	6,943
1941-42	2,620	2,700	7,074	-	-	2,700	7,074
Fruits, nuts, vegetables, and cocoa: Pre-war	-	-	18,800	-	-	-	18,800
1941-42	-	-	18,000	-	-	-	18,000
Alcohol: Pre-war	7,000	-	14,000	-	-	-	14,000
1941-42	7,000	-	7,000	-	-	-	7,000
Vegetable oils: Pre-war	9,050	900	8,145	-	-	900	8,145
1941-42	9,050	1,050	9,503	-	-	1,050	9,503
Subtotals: Foodstuffs of vegetable origin: Pre-war	-	-	252,648	-	-	-	252,648
1941-42	-	-	253,857	-	-	-	253,857
Butter: Pre-war	7,640	1,130	8,633	470	3,591	1,600	12,224
1941-42	7,640	1,280	9,779	20	153	1,300	9,932
Hog fat and tallow: Pre-war	8,850	1,180	10,443	200	1,770	1,380	12,213
1941-42	8,850	950	8,408	-	-	950	8,408
Marine oils: Pre-war	9,200	180	1,656	-	-	180	1,656
1941-42	9,200	60	552	-	-	60	552
All fats and oils: Pre-war	-	3,390	28,877	670	5,361	4,060	34,238
1941-42	-	3,340	28,242	20	153	3,360	28,395
All fats and oils if marine oils considered as imports: Pre-war	-	*3,210*	*27,221*	*670*	*5,361*	*3,880*	*32,582*
1941-42	-	*3,280*	*27,690*	*20*	*153*	*3,300*	*27,843*
Meats and poultry: Pre-war	[7] 1,800	10,700	19,260	1,300	2,340	12,000	21,600
1941-42	[7] 1,800	8,350	15,030	50	90	8,400	15,120
Fish: Pre-war	1,000	2,600	2,600	-	-	2,600	2,600
1941-42	1,000	1,560	1,560	-	-	1,560	1,560
Fish if only coastal fishing and fresh-water catch considered as domestic production: Pre-war	*1,000*	*1,300*	*1,300*	-	-	*1,300*	*1,300*
1941-42	*1,000*	*1,560*	*1,560*	-	-	*1,560*	*1,560*
Eggs: Pre-war	1,470	2,100	3,087	100	147	2,200	3,234
1941-42	1,470	1,050	1,544	-	-	1,050	1,544
Fresh milk (whole): Pre-war	670	32,000	21,440	-	-	32,000	21,440
1941-42	630	22,000	13,860	-	-	22,000	13,860
Cheese: Pre-war	2,800	1,600	4,480	100	280	1,700	4,760
1941-42	2,500	1,300	3,250	-	-	1,300	3,250
Subtotals: Foodstuffs of animal origin: Pre-war	-	-	71,599	-	8,128	-	79,727
1941-42	-	-	53,983	-	243	-	54,226
Subtotals: Foodstuffs of animal origin:[9] Pre-war	-	-	*68,643*	-	*8,128*	-	*76,771*
1941-42	-	-	*53,431*	-	*243*	-	*53,674*
Grand totals: Pre-war	-	-	324,247	-	8,128	-	332,375
1941-42	-	-	307,840	-	243	-	308,083
Grand totals:[10] Pre-war	-	-	*321,291*	-	*8,128*	-	*329,419*
1941-42	-	-	*307,288*	-	*243*	-	*307,531*

[1] Excluding the Soviet Union; individual countries in 1937 boundaries. Pre-war figures (for about 1936) are a revision of the data given in Foreign Agriculture, August 1942, p. 305. Skimmed milk for food was neglected.

[2] Estimated as continental European averages on the basis of the digestible food value tables given by F. J. König, and checked against other European sources. See KÖNIG, J., NAHRUNG UND ERNÄHRUNG DES MENSCHEN; KURZES LEHRBUCH. 213 pp. Berlin. 1936.

[3] See corresponding calculations in table 2.

[4] Caloric basis.

and consumption in continental Europe[1]

DIRECT NET IMPORTS[3]		CONSUMPTION			PERCENTAGE OF CONSUMPTION PRODUCED DOMESTICALLY FROM[4]		WARTIME PRODUCTION IN PERCENT OF PRE-WAR PRODUCTION FROM[4]		WARTIME CONSUMPTION IN PERCENT OF PRE-WAR[4]	
QUANTITY	TOTAL CALORIES	QUANTITY	TOTAL CALORIES	CALORIES IN PERCENT OF TOTAL	ALL SOURCES	DOMESTIC	DOMESTIC RESOURCES	ALL SOURCES	TOTAL	PER CAP. (INCL. SOLDIERS)
1,000 m. tons	*Billions*	*1,000 m. tons*	*Billions*	*Percent*	*Percent*	*Percent*	*Pre-war = 100*	*Pre-war = 100*	*Pre-war = 100*	*Pre-war = 100*
[5] 3,050	10,370	46,450	157,930	43.7	93.4	93.4	100.0	100.0	100.0	100.0
2,200	7,260	46,600	153,780	48.2	95.3	95.3	99.3	99.3	97.4	94.1
-	-	40,000	35,200	9.8	100.0	100.0	100.0	100.0	100.0	100.0
-	-	52,000	45,760	14.4	100.0	100.0	130.0	130.0	130.0	125.6
500	2,000	6,000	24,000	6.6	91.7	91.7	100.0	100.0	100.0	100.0
100	400	5,100	20,400	6.4	98.0	98.0	90.9	90.9	85.0	82.1
-	-	2,650	6,943	1.9	100.0	100.0	100.0	100.0	100.0	100.0
-	-	2,700	7,074	2.2	100.0	100.0	101.9	101.9	101.9	98.4
-	1,600	-	20,400	5.6	92.2	92.2	100.0	100.0	100.0	100.0
-	150	-	18,150	5.7	99.2	99.2	95.7	95.7	89.0	86.0
-	800	-	14,800	4.2	94.6	94.6	100.0	100.0	100.0	100.0
-	150	-	7,150	2.2	97.9	97.9	50.0	50.0	48.3	46.7
1,700	15,385	2,600	23,530	6.5	34.6	34.6	100.0	100.0	100.0	100.0
[6] 330	2,987	1,380	12,490	3.9	76.1	76.1	116.7	116.7	53.1	51.3
-	[7] 30,155	-	282,803	78.3	89.3	89.3	100.0	100.0	100.0	100.0
-	10,947	-	264,804	83.0	95.9	95.9	100.5	100.5	93.6	90.4
-200	-1,528	1,400	10,696	3.0	114.3	80.7	100.0	100.0	100.0	100.0
-	-	1,300	9,932	3.1	100.0	98.5	113.3	81.2	92.8	89.7
20	177	1,400	12,390	3.4	98.6	84.3	100.0	100.0	100.0	100.0
-	-	950	8,408	2.6	100.0	100.0	80.5	68.8	67.9	65.6
70	644	250	2,300	0.6	72.0	72.0	100.0	100.0	100.0	100.0
-	-	60	552	0.2	100.0	100.0	33.3	33.3	24.0	23.2
1,590	14,678	5,650	48,916	13.5	70.0	59.0	100.0	100.0	100.0	100.0
330	2,987	3,690	31,382	9.8	90.5	90.0	97.8	82.9	64.2	61.8
1,770	*16,334*	*5,650*	*48,916*	*13.5*	*66.6*	*55.6*	*100.0*	*100.0*	*100.0*	*100.0*
390	*3,539*	*3,690*	*31,382*	*9.5*	*88.7*	*88.2*	*101.7*	*85.4*	*64.2*	*61.8*
-100	-180	11,900	21,420	5.9	100.8	89.9	100.0	100.0	100.0	100.0
30	54	8,430	15,174	4.8	99.6	99.1	78.0	70.0	70.8	68.4
-	-	2,600	2,600	0.7	100.0	100.0	100.0	100.0	100.0	100.0
-	-	1,560	1,560	0.5	100.0	100.0	60.0	60.0	60.0	58.0
1,300	*1,300*	*2,600*	*2,600*	*0.7*	*50.0*	*50.0*	*100.0*	*100.0*	*100.0*	*100.0*
-	-	*1,560*	*1,560*	*0.5*	*100.0*	*100.0*	*120.0*	*120.0*	*60.0*	*58.0*
-100	-147	2,100	3,087	0.9	104.8	100.0	100.0	100.0	100.0	100.0
-	-	1,050	1,544	0.5	100.0	100.0	50.0	47.7	50.0	48.3
-	-	32,000	21,440	5.9	100.0	100.0	100.0	100.0	100.0	100.0
-	-	22,000	13,860	4.3	100.0	100.0	64.6	64.6	64.6	62.4
-100	-280	1,600	4,480	1.3	106.3	100.0	100.0	100.0	100.0	100.0
-	-	1,300	3,250	1.0	100.0	100.0	72.5	68.3	72.5	70.0
-	-1,314	-	78,413	21.7	101.7	91.3	100.0	100.0	100.0	100.0
-	54	-	54,280	17.0	99.9	99.4	75.3	68.1	69.2	66.8
-	*1,642*	-	*78,413*	*21.7*	*98.0*	*87.5*	*100.0*	*100.0*	*100.0*	*100.0*
-	*606*	-	*54,280*	*17.0*	*98.9*	*98.4*	*77.8*	*69.9*	*69.2*	*66.8*
-	[8] 28,841	-	361,216	100.0	92.0	[9] 89.8	100.0	100.0	100.0	100.0
-	11,001	-	319,084	100.0	96.6	96.5	94.9	92.7	88.3	85.3
-	[8] *31,797*	-	*361,216*	*100.0*	*91.2*	[9] *88.9*	*100.0*	*100.0*	*100.0*	*100.0*
-	*11,553*	-	*319,084*	*100.0*	*96.4*	*96.3*	*95.6*	*93.4*	*88.3*	*85.3*

[5] Includes 700 withdrawals from stocks.
[6] Includes 70 withdrawals from stocks.
[7] Allowance made for waste.
[8] Includes 2,944 withdrawals from stocks.
[9] Percentage of food self-sufficiency for continental Europe (about 1936).
[10] Totals in italics apply if marine oils obtained are considered as imports and if only coastal fishing and fresh-water catch are considered as domestic production.

better and more complete information becomes available from individual country analyses now in process.

PRE-WAR FOOD SELF-SUFFICIENCY

Before the war continental Europe (excluding Russia) imported cereals for food to the extent of about 3,000,000 metric tons of flour equivalent, 500,000 metric tons of sugar, about 1,600,000 tons of fats and oils for food, and some fresh and dried fruits. There was an export surplus, produced from imported feedstuffs, of about 100,000 tons each of meat, eggs, and cheese, and also a surplus of citrus fruit and some fresh vegetables.

Aside from foodstuffs for direct human consumption, continental Europe imported over 5,000,000 tons of feed grain, about 4,000,000 tons of oil cake (largely cake equivalent of imported oilseeds), and 900,000 tons of bran obtained from imported bread grains. The ultimate equivalent of these feedstuffs in terms of food produced therefrom may be estimated at a supply of about 1,300,000 tons of meat, 100,000 tons each of eggs and cheese, and 700,000 tons of edible fats, some of which was exported as indicated above. (See tables 1 and 2).

Evaluated in calories, and at the given distribution as between vegetable and animal foods, total continental European production of foodstuffs from domestic resources around 1936 amounted to about 324 trillion calories; net imports of foodstuffs of plant origin totaled about 30 trillion calories; animal foodstuffs produced from imported feedstuffs, about 7 trillion calories. Total continental consumption, therefore, amounted to about 360 trillion calories, 90 percent of which was covered by domestic production.

On the basis of calories, therefore, continental Europe's food self-sufficiency before the outbreak of war was around 90 percent. Corresponding calculations for individual food constituents indicate that self-sufficiency in protein, both animal and vegetal, as well as in carbohydrate was as much as 95 percent. The only outstanding deficit was in fat, with production from domestic resources meeting only about 74 percent of requirements; in animal fat alone, 89 percent; in vegetal fat, 46 percent.[1]

It should be noted that these degrees of self-sufficiency are based upon the quantitative and qualitative dietary levels as they actually prevailed in the pre-war period. They are, therefore, conditioned by general economic, institutional, and social circumstances as much as by natural factors. We know that continental Europe's pre-war food standards were high in some countries and population groups, medium and low in others, and averaged considerably under the advanced western European levels. A better diet, therefore, would have meant larger dependence on imported food supplies.

The calculations of food self-sufficiency given above have taken into account the imports of feedstuffs in terms of the food values that were ultimately produced from such feed. Most of continental European livestock production was maintained on a domestic-feed basis. Only about 11 percent of all food calories of animal origin produced around 1936 were obtained from imported feedstuffs. If net exports of livestock products, in terms of their feed equivalent, are deducted from feed imports, it appears that only about 8 percent of the continental production of animal foodstuffs was based upon imported feedstuffs. There were, of course, considerable local and regional variations - from complete feed self-sufficiency or even feed surpluses, to

[1] For a discussion of self-sufficiency by countries and food groups, see Foreign Agriculture, August 1942, pp. 299-312.

considerable import deficits. Thus, for example, the production of pork, poultry, eggs, and dairy products in northwestern and parts of central Europe depended, to a measurable extent, upon feed grains and protein concentrates imported from overseas.[2]

To complete this over-all picture of the degree and type of continental European food self-sufficiency before the outbreak of war, it should be mentioned that the Continent's agriculture was to some extent dependent on the importation of fertilizer, farm machinery, and motor fuel. In regard to nitrogenous and potash fertilizers, continental Europe was a net exporter. As to phosphoric acid from commercial fertilizer consumed on the Continent, only one-fourth or at best one-third was covered by intra-continental production of basic slag and phosphate rock. However, the export surpluses of nearby North Africa and the Kola Peninsula fully equaled the net continental deficit in phosphoric acid. In considering the continental fertilizer supply it must also be kept in mind that commercial fertilizer accounts for only a fraction of all plant nutrients returned to the soil, with farmyard manure providing the larger part.

WARTIME PRODUCTION

Since the outbreak of war continental European farm production, on the whole, has declined. Adverse weather conditions in some areas; the more permanent influence of certain shortages of labor, draft power, and fertilizer; and some destruction of agricultural productive capacity through military operations (France, Poland, Greece) have combined to bring about this result. The considerable decline in livestock numbers in parts of the Continent and the feeding of more bulky and less valuable feeds have reduced, quantitatively and qualitatively, the supply of farmyard manure, especially in regions where high crop yields were intimately related to the coexistence of intensive livestock farming. This reduction, in turn, reacted unfavorably upon yields in those areas.

Total agricultural production of foodstuffs and feedstuffs in continental Europe, 1941-42, in terms of original energy produced appears to have declined by about 8 percent compared to a period around 1936. This decline is equivalent to 75 trillion calories. There was a further loss of 29 trillion calories from imports, and 2 trillion from reduced supplies of fish and marine oils - or a total deficit of 106 trillion calories. Conversely, a supply of 3 trillion calories may have been drawn from stocks, and there was probably a diversion of something like 77 trillion calories from feed uses to food uses, which, at an average pre-war loss of six-sevenths in the conversion of feed into food calories, should have meant a gain of 66 trillion food calories. However, as a result of the lower feeding efficiency of the wartime feed supply there was an additional loss from the conversion of the remaining feed of 5 trillion calories. Hence the net deficit in total energy available for food may be estimated at 42 trillion calories (106 - 3 - 66 + 5 = 42), which had to come out of a reduction in consumption.

WARTIME ENERGY CONSUMPTION

Total pre-war consumption of 361 trillion calories, less 42 trillion, gives a wartime supply of 319 trillion calories. Assuming a total of 14 million in the armed

[2] This dependence was greatest in Denmark and The Netherlands. For example, Danish dairy production (with normally large export surpluses of butter and cheese) more than that of any other continental country before the war depended upon the importation of protein concentrates. It has been estimated in the Office of Foreign Agricultural Relations that, although the share of imported oil cake in the total feed consumption by Danish cattle amounted to no more than 12 percent on the basis of a calculation in "feed units," it was as much as one-third on the basis of digestible protein.

TABLE 2.--*Alternative calculation of pre-war food self-sufficiency in continental Europe*[1]

ITEM	NET IMPORTS OF FEEDSTUFFS					FOOD EQUIVALENT OF ALL IMPORTED FEEDSTUFFS						
	QUANTITY	DIGESTIBLE PROTEIN PERCENT[2]	DIGESTIBLE PROTEIN QUANTITY	STARCH EQUIVALENT PERCENT[2]	STARCH EQUIVALENT QUANTITY	MILK (INTERMEDIATE PRODUCTION)	BUTTER	CHEESE	SKIM MILK (INTERMEDIATE PRODUCTION)	MEAT	HOG FAT	EGGS
	1,000 m. tons		*1,000 m. tons*		*1,000 m. tons*	*1,000 m. tons*	*1,000 m. tons*	*1,000 m. tons*	*1,000 m. tons*	*1,000 m. tons*	*1,000 m. tons*	*1,000 m. tons*
Net imports of:												
Feed grains[3]	+4,800	6.9	+330	79	+3,800							
Rice for feed	+350	5.5	+20	82	+290							
Bran from imported bread grain	+900	10	+90	45	+400							
Oil cake (largely cake equivalent of imported oilseeds) rounded	+4,000	30	+1,200	70	+2,800							
Total	+10,050	-	+1,640	-	+7,290							
Allocation for production of:												
Milk[4]			-1,005		-2,440	+14,300						
Butter and cheese						-14,300	+470	+100	+11,500			
Skim milk used for feeding	+11,500	3.8	+440	9	+1,035				-11,500			
Allocation for production of:												
Pork, hog fat, and eggs[5]			-625		-4,830					+1,020	+200	+100
Other meat[6]			-450		-1,055					+280		
Food equivalents of imported feedstuffs	-		-		-	-	+470	+100	-	+1,300	+200	+100
Net exports of livestock products	-		-		-	-	-200	-100	-	-100	-	-100
Net indirect imports of foodstuffs	-		-		-	-	+270	-	-	+1,200	+200	-

ITEM	QUANTITY	FUEL VALUE PER METRIC TON	TOTAL FUEL VALUE OF FOOD IMPORTS QUANTITY	TOTAL FUEL VALUE OF FOOD IMPORTS PERCENTAGE OF TOTAL CONSUMPTION
	1,000 m. tons	*1,000 calories*	*Billion calories*	*Percent*
Net direct imports:				
Wheat and rye in terms of flour	2,600	3,400	8,840	-
Rice for food (milled equivalent)	450	3,400	1,530	-
Sugar (refined equivalent)	500	4,000	2,000	-
Fats and oils (including edible oil equivalent of imported oilseeds)[7]	1,790	9,050	16,206	-
Fruits, nuts, vegetables, cocoa	-	-	1,600	
Alcohol	-	-	800	
Total[8]	-	-	30,976	-
Net indirect imports:				
Meat and eggs	1,200	1,800[9]	2,160	-
Butter	270	7,640	2,063	-
Hog fat	200	8,850	1,770	-
Total	1,670	-	5,993	-
Net imports of food: Grand total	-	-	36,969	10
Continental food production	-	-	324,247	90
Continental food consumption	-	-	361,216[10]	100

[1] Estimates by the Office of Foreign Agricultural Relations for about 1936; Soviet Union excluded; individual countries in 1937 boundaries. See also table 1. Food self-sufficiency calculation based on straight average of average continental imports and exports for 1933-36 and 1936-38, thus giving slightly higher weight to the 1936-38 period when imports of bread grains, fats and oils, sugar, and feedstuffs were somewhat raised by the accumulation of emergency reserves in many European countries, notably Germany. This method has been chosen in order to guard against an overestimation of representative pre-war continental self-sufficiency on the basis of the rather high levels of domestic production attained in 1936-38. Data are revisions of figures given in Foreign

form of about 2 million tons of oil cake. All experts, however, will agree that in the case of complete elimination of oil-cake imports milk production would never decline to such an extent. The reason for this, in the first place, is to be found in the law of diminishing returns according to which the first kilogram of additional oil cake fed possibly increases milk output by 5 liters, the second kilogram perhaps only by 4 liters, the third only by 2 liters, etc. Moreover, oil cake not only produces milk, but, to some extent, also meat and fat; facilitates other physical functions of the body; regulates the temperature of the animals; etc. However, it is impossible to take account of each of these effects separately. For this reason, the simplest way for the eval-

on the basis of the rather high levels of domestic production attained in 1936-38. Data are revisions of figures given in Foreign Agriculture, August 1942, p. 308.

[2] Percentages based upon KELLNER, O., GRUNDZÜGE DER FÜTTERUNGSLEHRE. Ed. 8, rev. and enl. by G. Fingerling, 223 pp. Berlin. 1929.

[3] Barley 620,000 metric tons, oats 420,000, corn 3,760,000, total 4,800,000. Percentage of digestible protein for barley 8.0, for oats 7.2, and for corn 6.6; weighted average, 6.9. Percentage of starch equivalent for barley 72, for oats 60, and for corn 82; weighted average 79.

[4] Eighty percent of the oil-cake imports and 50 percent of bran imports. Conversion based upon protein content with starch equivalent largely neglected. The conversion from protein into milk based upon a ratio of 70 grams of protein per kilogram of milk. This ratio rather than the theoretical coefficient of 50 grams of protein per kilogram of milk is thought to apply in actual practice to conditions with which the calculation of a food balance for continental Europe is concerned. It is somewhere in between the theoretical coefficient and that of about 100 grams of protein per kilogram of milk suggested for similar calculations by H. von der Decken. "The evaluation of oil cake (1 kilogram of oil cake equivalent to about 3 liters of milk) is in accordance with the results which in practice are obtained on an average, after from 8 to 10 liters of milk have already been produced on the basis of farm-grown feed. For the conversion of oil cake into milk, the scientific norm is frequently used according to which 1 kilogram of milk can be produced from 45 or 50 grams of digestible protein. Since oil cake has about 33 percent protein so that 1 kilogram contains about 330 grams of it, 1 kilogram of oil cake would not be equivalent to 3 liters but to about 6 or 7 liters of milk. This would mean that, for example, in 1933 from 12 to 14 billion liters of milk or more than one-half Germany's total production of 24 billion liters were imported indirectly from abroad in the However, it is impossible to take account of each of these effects separately. For this reason, the simplest way for the evaluation of oil cake seemed to be the conversion into milk on the basis of the factor 1:3, which is confirmed by actual practice." (VON DER DECKEN, H., DEUTSCHLAND'S VERSORGUNG MIT LANDWIRTSCHAFTLICHEN ERZEUGNISSEN. Berichte über Landwirtschaft, 115. Sonderheft, Berlin, 1935, pp. 56-57. Translated from German.)

[5] Of the imported feedstuffs, a total of 4,830,000 tons of starch equivalent, including 625,000 tons of digestible protein, were allocated to the production of pork, hog fat, and eggs. On the basis of 360 tons of starch equivalent to 100 tons of pork and eggs, the conversion gives a total of 1,340,000 metric tons. On the basis of protein alone, and at the ratio of 500 tons of digestible protein per 1,000 tons of pork and eggs, the conversion works out at 1,250,000 tons of pork and eggs. As between these two figures a conversion total of 1,320,000 metric tons was accepted. Of these 100,000 tons were allocated to eggs and the remainder, 1,220,000 tons, to pork and hog fat. It was assumed that the imported feed produced pork and hog fat at the ratio of 83 for pork plus bones: 17 for hog fat. This is approximately equivalent to 200,000 tons of hog fat and 1,020,000 tons of pork.

[6] Conversion based on protein alone; 1,600 tons of digestible protein per 1,000 tons of meat, gives 280,000 tons of meat.

[7] For composition of this item, see table 1. Butter exports were deducted from the indirect imports (butter produced from imported feedstuffs) given below and were therefore not deducted from the imports of fats and oils as such.

[8] No account taken of continental European exports of butter, cheese, meat, and eggs; they were deducted from indirect imports (foodstuffs from imported feedstuffs) given below.

[9] Allowance made for bone and waste in distribution.

[10] As per table 1: 343 million estimated 1936 population, at average continental daily calorie consumption of 2,885 per person.

TABLE 3.—*Pre-war and wartime food balance for continental Europe*[1]

ITEM	PRE-WAR (AROUND 1936)		WARTIME (1941-42)	
	PRODUCTION AND DISPOSITION	HUMAN CONSUMPTION	PRODUCTION AND DISPOSITION	HUMAN CONSUMPTION
	Trillion calories	*Trillion calories*	*Trillion calories*	*Trillion calories*
Agricultural production of foodstuffs and feedstuffs	950		875	
Seed, losses, and waste	120		120	
Feed for draft animals	100		100	
Net available	730		655	
Direct vegetable foodstuffs	252	252	254	254
Domestic feed converted into food[2]	478	68	401	52
Fish and fish oils		4		2
Total consumption of food domestically produced		324		308
Imported vegetable foodstuffs		30		8
Imported feeds converted into animal foodstuffs less net exports of animal foodstuffs		7		
Withdrawal from stocks		-		3
Total consumption of all foodstuffs		361		319
Consumption by armed forces		-[4]		[3] 18
Civilian consumption		4 361		301
Civilian consumption per capita per day (calories)		[5] 2,885		[6] 2,420
Civilian consumption per capita percent of pre-war		100		84

[1] Excluding Soviet Union; individual countries in 1937 boundaries. All estimates by Office of Foreign Agricultural Relations.

[2] Conversion at approximate ratios of 7.1 and 7.7:1 in the pre-war and war periods, respectively.

[3] Assumed: 14 million at 3,600 calories per day.

[4] Consumption by armed forces not separately allowed for.

[5] Population basis 1936: 343 million.

[6] Population basis 1941-42: 355 million minus 14 as per footnote 5 = 341 million.

forces and allowing for them an average of 3,600 calories per day, gives 18 trillion calories. The supply for the civilian population may therefore be estimated at 301 trillion calories, or for 341 million people (355 - 14 = 341) 2,420 calories per person per day, compared to 2,885 calories for 1936. Civilian per capita consumption in 1941-42, therefore, appears to have been around 84 percent of the pre-war level. (See table 3.)

Such an average, of course, hides the significant fact that many people, including most of the agricultural population, are still living at pre-war levels, while food consumption in other population groups has been drastically curtailed. It also hides very considerable differences in food consumption as among individual countries and regions. If it were to be assumed that 40 percent of the continental population was scarcely affected by the reduction in the food supply, it would appear that the remaining 60 percent must have had its energy intake curtailed by more than one-fourth of the pre-war level. Nor is this all. There are further substantial differences in food consumption within this 60-percent group, so that millions of people must subsist on much less than three-fourths of the pre-war energy intake.

CONSUMPTION BY FOOD GROUPS

The wartime reductions in per capita consumption, compared to pre-war, have amounted to about one-third in foodstuffs of animal origin and to about 10 percent in foodstuffs of vegetable origin. In regard to individual food groups, as may be seen in table 1, the reductions have been greatest in eggs (50 percent), fats and oils and fresh milk (40 percent), and meat and cheese (30 percent). The decline in the consumption of grain for food may be estimated at about 12 percent, but as a result of higher extraction the reduction in terms of flour was only 3 percent (or, on the basis of calories, 6 percent, because of the lower digestible energy value of coarser flour). There was also a considerable curtailment in the production and consumption of fruit, largely due to the severe freezes that have occurred in the past 3 years. Consumption of potatoes and other fresh vegetables, on the other hand, has greatly increased.

COMPOSITION OF DIET

The rough quantitative outline given above implies some significant changes in the composition of food supplies. Before the war about 78 percent of the total energy value was derived from foodstuffs of vegetable origin and only 22 percent, from foodstuffs of animal origin. There was a wide variation as among countries. For Germany the proportion was two-thirds to one-third; for the Scandinavian countries and the Netherlands, even higher in animal foods; and for southern and eastern Europe, below the average.

By 1941-42 the share of foodstuffs of animal origin had fallen to 17 percent, whereas that of vegetable foodstuffs had risen to 83 percent of total calories. Cereals and potatoes before the war accounted for about 53 percent of total calorie consumption; in 1941-42, for about 62 percent. As before the war, sugar may be estimated to provide still from 6 to 7 percent of total calories; fruits, vegetables (other than potatoes), and legumes about 8 percent, with the wartime decline in the supply of fruits offset by the increase in vegetables. Before the war, fresh-milk consumption provided about 6 percent of the total calories (in Germany 8 percent) but by 1941-42, only about 4 percent. Consumption of meat and poultry, around 1936, may have supplied 6 percent of the total calories (in Denmark 10 percent, in Italy 4 percent), in 1941-42 probably less than 5 percent. Fats and oils, before

the war, accounted for about 13.5 percent of the total caloric intake on the Continent (in Denmark 22 percent, in Italy 10 percent); by 1941-42 this share had declined to less than 10 percent.

While actual distribution by countries varied a great deal, pre-war domestic and imported supplies in continental Europe sufficed to give the people a diet of 33.7 grams of animal protein, 42.4 grams of vegetable protein, 71.8 grams of fat, and 436 grams of carbohydrate per capita per day (all on a digestible basis). Since the outbreak of war animal proteins have been reduced to 22.6 grams, vegetable protein has risen to 47.2 grams, fat was reduced to 45.4 grams, and carbohydrate to 407 grams per person per day. In other words, compared to pre-war, 1941-42 per capita consumption of animal protein was reduced by one-third; of total protein, by about 8 percent; of fat, by about 37 percent; and of carbohydrate, by about 7 percent; whereas vegetable protein alone increased by about 11 percent (largely because of the higher flour extraction). As these figures are averages including the armed forces, the 1941-42 civilian supplies, compared to pre-war, have been reduced to below the indicated levels, particularly in animal protein and fat.

POST-WAR REQUIREMENTS

The statistical picture of continental Europe's pre-war and wartime food balance must be further analysed in order to yield some indication as to the magnitude of the Continent's import requirements after the war. From the importance of domestic production in the total food supply it may be readily inferred, however, that no amount of food relief could possibly compensate for even moderate further declines in domestic production. The first and most important need, therefore, will be the maintenance, or restoration, of agricultural productivity. Secondly, since many of the nutritional difficulties in continental Europe under wartime conditions have been due to the inequalities of consumption as among countries, regions, and population groups, an organization of distribution on more nearly equitable bases would contribute much toward relieving distress. Yet, neither of these two most difficult tasks of post-war continental food administration could be accomplished without substantial direct shipments of food and other essential commodities into the deficient areas. Quite apart from the need for an improvement in the nutrition of millions of people, in-shipments of food will be required to facilitate a measure of rediversion of crops from food to feed uses and a gradual rebuilding of livestock, necessary in the interest of agricultural restoration. In-shipments of food will also be instrumental in bringing about an equalization of food consumption, since they constitute supplies whose distribution the administrative authorities can completely direct and control.

Looking ahead into a period when the food deficit of continental Europe will again be a claimant on supplies in the American, Pacific, and African areas, it may be well to state a few simple facts introductory to a more searching analysis contemplated for one of the future issues of FOREIGN AGRICULTURE. With per capita consumption at 1936 levels, continental Europe's food needs at present would amount to 374 trillion calories per year. With all the shifts toward relatively larger production and consumption of foodstuffs of vegetable origin, the Continent in 1941-42 produced only 308 trillion calories of ultimate food value; at a more desirable dietary composition, this production would have been less. Compared to the pre-war level of per capita energy intake there is, therefore, a deficit of at least 66 trillion calories or almost twice the pre-war deficit of 37 trillion calories. To restore per capita consumption to pre-war levels also in respect of composition and within a short

TABLE 4.—*Consumption of cereals for food in continental Europe*[1]

ITEM	PRE-WAR (AROUND 1936)		WARTIME (1941-42)	
Wheat and rye:	*1,000 metric tons*		*1,000 metric tons*	
Total production	64,665		[2] 56,700	
Seed	7,825		8,500	
Waste and loss	1,940		1,700	
Net available	54,900		46,500	
Feed and other uses (starch, alcohol)	[3] 6,000		[4] 3,000	
Consumption as food	48,900		43,500	
Consumption in terms of flour	[5] 36,675		[6] 37,000	
Net imports of breadstuffs as flour	2,600		[7] 1,500	
Withdrawals from stocks	-	39,275	700	39,200
Rice:				
Production for food	550		600	
Net imports for food	450	1,000	-	600
Corn:				
Consumption as food:				
Southeast Europe	4,000		4,500	
Italy	1,300		1,500	
Spain-Portugal	500		500	
Total	5,800		6,500	
Total as meal or flour		[8] 4,900		[9] 5,200
Other grains:				
Consumption for food		[10] 1,280		[11] 1,600
Total consumption of cereals for food in terms of flour		46,455		46,600

[1] Excluding Soviet Union; individual countries in 1937 boundaries. See also Foreign Agriculture, August 1942, p. 303. Estimates by Office of Foreign Agricultural Relations.

[2] Rough estimate of seed requirements, taking into consideration resowings, which were especially large in 1941-42.

[3] Feeding of wheat and rye, average 4 or 5 years around 1936: Germany, 2,000; Austria, 150; Czechoslovakia and Poland, 400; Danube, 400; France, 800; Belgium, 650; Netherlands, 500; Denmark, 600; Norway, 30; Sweden, 200; other countries, 270; total, 6,000.

[4] Maximum feeding of wheat and rye: France and Italy, 1,000 (or one-half of unexplained disappearance); Germany and other central Europe, 1,000; other countries, 1,000.

[5] 75-percent extraction.

[6] 85-percent extraction.

[7] 1,800 at 81-percent extraction.

[8] At 85-percent extraction.

[9] At 80-percent extraction because of higher share of flour as against meal, compared to pre-war.

[10] Consumption of barley, oats, buckwheat, millet, and of corn in countries not specifically mentioned in the table. Food uses only, not including coffee substitutes and the like. Germany, Austria, Czechoslovakia, 250; Scandinavia and Finland, 160; Low Countries and France, 260; Spain and Portugal, 50; Italy and Greece, 60; Danube Basin and Poland, 200; other countries, 20. (The southern and southeastern countries: excluding corn which separately accounted for in the table.) Total: 1,000. Consumption of maslin for food: Germany and Austria, 60; Belgium-Luxemburg, France, and Spain, 60; Bulgaria and Yugoslavia, 150; Poland, 100: Total: 370, or in terms of flour, at 75-percent extraction, 280. Grand total: 1,280.

[11] Of which 500 maslin, or at 80 percent, 400 in terms of flour.

period of time would at present require an importation of perhaps 40 trillion calories of foodstuffs of vegetable origin (pre-war: 30 trillion), and 26 trillion calories of livestock products or, to a limited extent, feedstuffs from which to produce them (pre-war: 7 trillion). Such imports would correspond to, say, 10,000,000 metric tons of bread grain, 2,500,000 tons of fats and oils, 4,000,000 to 5,000,000 tons of meat and eggs, and substantial quantities of dried milk, cheese, and fruits.

It is clear that neither available supplies nor shipping facilities would suffice, in the immediate post-war period, to fill such requirements, which would be in addition to the import needs of the United Kingdom, a traditional deficit area, and of the Soviet Union, before the war a net exporter of food but for some time after the war likely to require imports on a substantial scale. There will be additional deficit areas in Asia and Latin America.

TABLE 5.—*Production versus consumption approach in the calculation of pre-war continental European food self-sufficiency*[1]

PRODUCTION APPROACH	FUEL VALUE	CONSUMPTION APPROACH	FROM VEGETABLE SOURCES	FROM ANIMAL SOURCES	TOTAL FUEL VALUE
	Trillion calories		*Trillion calories*	*Trillion calories*	*Trillion calories*
Actual agricultural production of energy from the soil	950	Consumption of domestic vegetable foodstuffs	252		
Seed, losses, and waste	120	Consumption of animal foodstuffs produced from domestic feed[2]		68	
Feed for draft animals	100				
Net available	730				
Direct vegetable foodstuffs	252	Consumption of domestic production of fish and fish oils		4	
Feedstuffs for conversion into foodstuffs	478				
Domestic crop output required to produce imported foodstuffs:		Total consumption of food domestically produced	252	72	324
Direct vegetable foodstuffs	30				
Feedstuffs on the basis of domestic ratio of 7:1[3]	49	Consumption of imported vegetable foodstuffs	30		
Feedstuffs for draft animals required for additional home production	11	Consumption of animal foods imported or converted from imported feeds		7	
Allowance for seed, losses, and waste for additional home production	10				
Total	100	Total consumption of imported foodstuffs	30	7	37
Total domestic agricultural production of foodstuffs and feedstuffs required for complete self-sufficiency	1,050	Total consumption of all foodstuffs	282	79	361
Degree of self-sufficiency	[4] 90%	Degree of self-sufficiency			[4] 90%

[1] Estimated by Office of Foreign Agricultural Relations. This is a revision of table 5, p. 310, in Foreign Agriculture, August 1942. For comments see that article, pp. 308-310.

[2] Conversion ratio: 7 feed calories to 1 food calorie.

[3] The actual ratio of feed calories imported to food calories produced therefrom is only 5:1 because of the greater feeding efficiency of the average composition of imported feeds as against that of domestically produced feedstuffs.

[4] The identity of the two percentages for degree of self-sufficiency is not a tautology in the sense that the two sets of calculations use the same data but only develop them from the production and consumption sides, respectively. This identity is rather due to a considerable similarity in the composition, as between vegetable and animal origin, of the foods domestically produced and imported. In extreme conditions a considerable divergence would be found in the results of the two methods of calculating self-sufficiency. For example, for a given composition of food consumption, the greater the domestic production of vegetable foodstuffs in relation to that of animal foodstuffs, and the greater the imports of animal foodstuffs (and feedstuffs) in relation to those of vegetable foodstuffs, the greater will be the difference between the (lower) degree of self-sufficiency calculated on the basis of the "production approach," and the (higher) degree of self-sufficiency calculated by the "consumption approach." It is easy to see that this difference arises from the loss of calories in the conversion of feeds into foodstuffs. The consumption approach ignores this loss because it evaluates imports of livestock products and feedstuffs in terms of the food calories ultimately obtained from them. The production approach, on the other hand, throws into the scales the full weight of the calories that would have to be additionally produced at home in the form of feedstuffs if all imports of livestock products and feedstuffs were to be eliminated.

If production in continental Europe can be maintained at present levels, an importation of food energy to the extent of pre-war imports could raise average consumption to over 90 percent of the pre-war caloric level. If it were imported exclusively for the benefit of that 60-percent group whose consumption must have fallen to under three-fourths of the pre-war standard, the increase in the food level of that group would be substantial. However, the magnitude of even this task is formidable. In view of the urgency of the need and the shipping problem, foodstuffs will have to be supplied in place of feedstuffs. Reduced to food equivalents, pre-war

imports (less exports) were of the order of 3 to 4 million tons of bread grain, 500,000 tons of sugar, 2,300,000 tons of fats and oils, 1,200,000 tons of meat, and some fresh and dried fruit. If the food situation were to be really improved over wide areas, not more than one-third of these quantities of fats and meat could be replaced by additional shipment of bread grain and legumes. Such replacement would raise the bread-grain figure to something like 6 or 7 million metric tons (including legumes). There is, of course, no certainty that domestic production in continental Europe can be maintained at present levels, and further losses must be expected. Every percent of decline in output would mean a 10-percent increase in import needs if the total consumption aim were to remain unchanged.

CONCLUSION

Summarizing the results of this statistical survey, it may be said that the changes in continental Europe's wartime agricultural production and food consumption have been considerable. Although some diversion of crop production from feed to food uses and the shifts toward greater reliance on foodstuffs of vegetable origin have somewhat cushioned the impact of the decline in total production and imports, average civilian consumption of food energy in 1941-42 was reduced to about 84 percent of pre-war. With wide variations in the food standard as among regions and population groups, the reduction for millions of people was much more drastic than indicated by that average. Moreover, while energy value is the best measure available, it is not an ideal common denominator for food comparisons. Wartime food consumption in terms of animal protein and fat, for example, has been much more severely curtailed than consumption in terms of energy. It is also probable that there must have been a considerable deterioration, in some regions and population groups, in the diet with respect to certain vitamins and mineral salts. In other words, over and above the decline in total energy available, the qualitative composition of the diet of many people has been unfavorably affected - notwithstanding some beneficial effects from a higher flour extraction and increased consumption of potatoes and vegetables.

On the other hand, the reductions that have occurred have not been great enough to make the food problem in the European Axis countries a decisive factor in the war. Germany's food position continues far better than it was in the last war, and in Italy it is distribution, not total supply, that is causing serious hardship in certain population groups.

The wartime declines and changes in agricultural production and food consumption on the Continent make it probable that European import requirements will be considerable after the war. Since the Continent's needs will be in addition to substantial requirements in other areas, notably the United Kingdom and the Soviet Union, it may not be possible to bring consumption back to pre-war levels in the immediate post-war period. In view of the importance of domestic production in the total food supply of continental Europe, maintenance, or restoration, of agricultural productivity will be one of the most important aims of relief policy after the war.

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